Complete Summary

GUIDELINE TITLE

Vaginal birth after cesarean.

BIBLIOGRAPHIC SOURCE(S)

Institute for Clinical Systems Improvement (ICSI). Vaginal birth after cesarean. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2004 Oct. 22 p. [52 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Pregnancy, previous cesarean section

GUIDELINE CATEGORY

Evaluation
Management
Risk Assessment

CLINICAL SPECIALTY

Obstetrics and Gynecology

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Health Care Providers

Health Plans
Hospitals
Managed Care Organizations
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To increase the percentage of vaginal birth after cesarean (VBAC) eligible women who receive education describing risks and benefits of VBAC
- To increase provider understanding of patient decisions regarding VBAC

TARGET POPULATION

All pregnant women with a previous cesarean section

INTERVENTIONS AND PRACTICES CONSIDERED

1. Obtaining patient history of previous cesarean section at first office visit, including obtaining previous operative records for type of uterine incision
2. Performing thorough medical history and physical exam
3. Consultation with other specialists as indicated
4. Assessment of possible contraindications to vaginal birth after cesarean (VBAC)
5. Providing patient education and counseling in risks and benefits associated with VBAC
6. Labor management for VBAC, including:
    - availability of cesarean delivery team within a short time
    - intermittent auscultation or continuous electronic fetal heart rate monitoring
    - intravenous access and availability of blood products as indicated
    - augmentation or induction of labor with medication such as:
        - oxytocin
        - prostaglandins (misoprostol)
    - availability of specialty teams for obstetric emergencies
7. VBAC or repeat cesarean section

MAJOR OUTCOMES CONSIDERED

- Rate of complications/adverse effects associated with vaginal birth after cesarean (VBAC), including rate of uterine rupture and perinatal and maternal morbidity and mortality
- Success rate of VBAC in presence of risk factors (e.g., previous cesarean section(s); history of failure to progress in labor, short interval between pregnancies; augmentation or induction of labor)

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Pilot Testing
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Institute Partners: System-Wide Review

The guideline annotation, discussion and measurement specification documents undergo thorough review. Written comments are solicited from clinical, measurement, and management experts from within the member groups during an eight-week review period.

Each of the Institute's participating member groups determines its own process for distributing the guideline and obtaining feedback. Clinicians are asked to suggest modifications based on their understanding of the clinical literature coupled with their clinical expertise. Representatives from all departments involved in implementation and measurement review the guideline to determine its operational impact. Measurement specifications for selected measures are developed by the Institute for Clinical Systems Improvement (ICSI) in collaboration with participating member groups following implementation of the guideline. The specifications suggest approaches to operationalizing the measure.

Guideline Work Group

Following the completion of the review period, the guideline work group meets 1 to 2 times to review the input received. The original guideline is revised as necessary and a written response is prepared to address each of the responses received from member groups. Two members of the OB/GYN Steering Committee carefully review the input, the work group responses, and the revised draft of the guideline. They report to the entire committee their assessment of four questions: (1) Is there consensus among all ICSI member groups and hospitals on the content of the guideline document? (2) Has the drafting work group answered all criticisms reasonably from the member groups? (3) Within the knowledge of the appointed reviewer, is the evidence cited in the document current and not out-of-date? (4) Is the document sufficiently similar to the prior edition that a more thorough review (critical review) is not needed by the member group? The committee then either approves the guideline for release as submitted or negotiates changes with the work group representative present at the meeting.

Pilot Test

Member groups may introduce the guideline at pilot sites, providing training to the clinical staff and incorporating it into the organization's scheduling, computer and other practice systems. Evaluation and assessment occurs throughout the pilot test phase, which usually lasts for three to six months. At the end of the pilot test phase, ICSI staff and the leader of the work group conduct an interview with the member groups participating in the pilot test phase to review their experience and gather comments, suggestions, and implementation tools.

The guideline work group meets to review the pilot sites' experiences and makes the necessary revisions to the guideline; the OB/GYN Steering Committee reviews the revised guideline and approves it for release.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The recommendations for vaginal birth after cesarean (VBAC) are presented in the form of an algorithm with 12 components, accompanied by detailed annotations. An algorithm is provided for Vaginal Birth After Cesarean (VBAC). Clinical highlights and selected annotations (numbered to correspond with the algorithm) follow.

Class of evidence (A-D, M, R, X) definitions are provided at the end of the "Major Recommendations" field.

Clinical Highlights and Recommendations

1. Determine possible contraindications of patient for VBAC.
    - Previous classical incision or another deeply penetrating incision into the myometrium of the upper uterus
    - Any other obstetric or fetal contraindication to vaginal delivery
    - Patient refusal
    - Institutional inability to meet VBAC guideline criteria

    (Annotation #2)

2. Educate patient on risks and benefits associated with VBAC; document education and patient's response.

    (Annotation #4)

3. Select delivery facility equipped to provide special considerations of labor management such as:
    - Team capable and available within a short time to perform a cesarean delivery or respond to other obstetric emergencies
    - Provision of intermittent auscultation or continuous electronic fetal heart monitoring
    - Response to maternal complications and/or fetal distress

    (Annotations #7 and 9)

Vaginal Birth After Cesarean Algorithm Annotations

1. First Office Visit
    A. Obtain previous operative reports stating type of uterine incision
    B. Perform thorough history and physical
    C. Obtain necessary consultations from other specialists

    Evidence supporting this recommendation is of classes: C, R

2. Contraindications to VBAC?
    A. Contraindications to VBAC:
        - Previous classic cesarean section

        Evidence supporting this recommendation is of classes: C, D, M, R

- Some uterine surgery (e.g., hysterotomy, deep myomectomy, cornual resection, and metroplasty)

  Evidence supporting this recommendation is of classes: B, C, M, R

- Previous uterine rupture or dehiscence

  Evidence supporting this recommendation is of class: D

- Some maternal/fetal medical conditions, such as open neural tube defect and complete placenta previa
- Unknown uterine scar if there is a high likelihood of classical scar

  Evidence supporting this recommendation is of classes: B, D

- Rare psychological or social conditions that indicate the patient may not be a good candidate

  Evidence supporting this recommendation is of class: R

- Patient refusal
- Institutional inability to meet VBAC guideline criteria (e.g., geographic complications and not able to meet emergency interventions)

B. Conditions that are not contraindications but may increase risk:
   - Two or more previous cesarean deliveries

     Evidence supporting this recommendation is of classes: B, X

   - Previous failure to progress in labor and/or cephalopelvic disproportion (CPD)

     Evidence supporting this recommendation is of classes: C, D

   - Interpregnancy interval of less than 9 months

     Evidence supporting this recommendation is of classes: B, C

   - Indications for previous cesarean delivery(ies)
   - Induction

     Evidence supporting this recommendation is of class: C

- Closure of the previous uterine incision by single layer technique

  Evidence supporting this recommendation is of class: B

C. Conditions that have no documented increased risk:
   - Post cesarean delivery infection

     Evidence supporting this recommendation is of class: C

   - Known overdistended uterus (e.g., twins, macrosomia, hydramnios)

     Evidence supporting this recommendation is of classes: C, D

4. Discuss Risks/Benefits with Patient and Document

   Provide patient education, including a discussion of the risks and benefits associated with VBAC. Encourage VBAC in appropriate patients. (See Annotation #2 "Contraindications to VBAC?" above.)(See Annotation Appendix A in the original guideline document, "Health Education Handout.")

   Document this discussion.

   Evidence supporting this recommendation is of class: R

6. Routine Prenatal Care Until Labor/Patient Instructed to Report to Hospital in Active Labor

   See the related National Guideline Clearinghouse (NGC) summary of the Institute for Clinical Systems Improvement (ICSI) guideline Routine Prenatal Care.

   Attempt at external version is not a contraindication for VBAC.

   Evidence supporting this recommendation is of class: D

7. Special Considerations of Labor Management
   - Cesarean section team availability within a short time.

     Evidence supporting this recommendation is of class: R

   - Intermittent auscultation or continuous electronic fetal heart rate monitoring should be done.
   - Intravenous (IV) access and availability of blood products must be done at a provider's discretion.
   - Augmentation or induction of labor with oxytocin increases the risk of uterine rupture.

Evidence supporting this recommendation is of class: C

- The use of prostaglandins for induction is not recommended because it increases the risk of uterine rupture

  Evidence supporting this recommendation is of classes: B, C, D, R

- Uterine scars do not require manual exploration postpartum.

  Evidence supporting this recommendation is of class: D

- Epidural anesthesia is not contraindicated.

  Evidence supporting this recommendation is of classes: C, D

- Amnioinfusion is not contraindicated.

  Evidence supporting this recommendation is of class: D

- Intrauterine pressure catheters are not necessary unless there are other obstetric indications.

  Evidence supporting this recommendation is of class: C

9. Complicated Labor Management

   Complicated labor results from:

   - Failure to progress (See the related NGC summary of the ICSI guideline Prevention, Diagnosis and Treatment of Failure to Progress in Obstetrical Labor).

     Evidence supporting this recommendation is of classes: C, D

   - Fetal distress (See the related guideline Intrapartum Fetal Heart Rate Management).
   - Maternal complication
   - Uterine rupture

   Evidence supporting this recommendation is of class: R

   The same considerations for intervention in labor apply to VBAC as for other attempted deliveries.

Definitions:

Classes of Research Reports:

A. Primary Reports of New Data Collection:

Class A:

- Randomized, controlled trial

Class B:

- Cohort study

Class C:

- Nonrandomized trial with concurrent or historical controls
- Case-control study
- Study of sensitivity and specificity of a diagnostic test
- Population-based descriptive study

Class D:

- Cross-sectional study
- Case series
- Case report

B. Reports that Synthesize or Reflect upon Collections of Primary Reports:

Class M:

- Meta-analysis
- Systematic review
- Decision analysis
- Cost-effectiveness analysis

Class R:

- Consensus statement
- Consensus report
- Narrative review

Class X:

- Medical opinion

CLINICAL ALGORITHM(S)

A detailed and annotated clinical algorithm is provided for Vaginal Birth After Cesarean (VBAC).

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The guideline contains an annotated bibliography and discussion of the evidence supporting each recommendation. The type of supporting evidence is classified for selected recommendations (see "Major Recommendations").

The recommendations in this guideline are supported by large controlled studies. The guideline work group would have preferred to refer to double-blind studies, but it is not feasible to blind a woman to whether she is having labor or a cesarean delivery, and it is unsafe to blind providers to whether a woman has had a previous cesarean section or not.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Increased provider understanding of possible complications and contraindications to vaginal birth after cesarean (VBAC)
- Increased percentage of VBAC-eligible women who receive education regarding risks and benefits of VBAC
- Increased provider understanding of patient decisions regarding VBAC

POTENTIAL HARMS

Risks of vaginal birth after cesarean (VBAC) include hysterectomy, uterine rupture, operative injury, and perinatal and maternal mortality.

However, the overall rate of maternal complications has not been found to differ significantly between women who choose a trial of labor and women who elect to have a cesarean delivery.

The following data from McMahon et al. (Comparison of a Trial of Labor with an Elective Cesarean Section, N Engl J Med 335:689-95, 1996) should be discussed when counseling the patient:

- The safest route for the mother was successful vaginal delivery; the risk of major complications for the baby was about equal for trial of labor or elective C-section.
- The risk of major complications (hysterectomy, uterine rupture, operative injury) was 1.6% after trial of labor and 0.8% with scheduled repeat cesarean section. While the rate of major complications with trial of labor is slightly higher, the risk in both cases is still quite low.

The guideline work group and the Institute for Clinical Systems Improvement (ICSI) Obstetrics/Gynecology Steering Committee concluded that vaginal birth after cesarean is still the best option, due to the high probability of successful vaginal delivery and the low rate of complications after trial of labor.

Symptomatic rupture of the gravid uterus carries a 45.8% perinatal mortality and a 4.2% maternal mortality and occurs in 4.3% to 8.8% of women with a high vertical uterine scar. Incisions penetrating the muscular layer of the uterus may weaken this area and increase the risk of uterine rupture. The scarred uterus has an increased potential to rupture. Uterine rupture occurs between 1/100 and

1/11,000 deliveries depending on whose data one uses and the clinical presentation.

Rupture through a low segment transverse scar is much more likely to go undetected or produce maternal hypovolemia or gradual fetal distress. Complete rupture with expulsion of fetus or placenta is a true obstetric emergency and can lead to maternal or hypovolemic complication, even death, as well as fetal hypoxia and death.

Potential Medication Side Effects

- Augmentation or induction of labor with oxytocin increases the risk of uterine rupture.
- Some studies suggest that the use of misoprostol and other prostaglandins may increase the risk of uterine rupture.

Subgroups Most Likely to be Harmed

Type of uterine scar: The type of uterine scar associated with a previous uterine rupture or dehiscence makes a difference in the frequency of rupture and severity of symptoms. A rate of repeat separation of 6.4% is reported if previous uterine incision is in the lower segment and a 32.1% rate is seen if the scar is in the upper segment, with complication rates assumed to be similar to those of the primary uterine rupture.

Conditions that Are Not Contraindications but May Increase Risk

- More than one previous cesarean delivery
- Previous failure to progress in labor and/or cephalopelvic disproportion
- Interpregnancy interval of less than 9 months
- Indications for previous cesarean delivery(ies)
- Induction
- Closure of the previous uterine incision by single layer technique
- Previous uterine injury, cesarean delivery, myomectomy, etc.
- Trauma during pregnancy - hyperstimulation, difficult forceps, internal podalic versions, fundal pressure, etc.
- Uterine defects not related to trauma (e.g., congenital defect, invasive mole, etc.)

CONTRAINDICATIONS

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Contraindications to Vaginal Birth After Cesarean (VBAC)

- Previous classic cesarean section
- Some uterine surgery (i.e., hysterotomy, deep myomectomy, cornual resection, metroplasty): incisions penetrating the muscular layer of the uterus may weaken this area and increase the risk of uterine rupture
- Previous uterine rupture or dehiscence

- Some maternal/fetal medical conditions, such as open neural tube defect and complete placenta previa
- Unknown uterine scar if there is a high likelihood of classical scar
- Rare psychological or social conditions that indicate the patient may not be a good candidate
- Patient refusal
- Institutional inability to meet VBAC guideline criteria (e.g., geographic complications and not able to meet emergency interventions)

QUALIFYING STATEMENTS

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- This clinical guideline should not be construed as medical advice or medical opinion related to any specific facts or circumstances. Patients are urged to consult a health care professional regarding their own situation and any specific medical questions they may have.
- This clinical guideline is designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients, and is not intended either to replace a clinician's judgment or to establish a protocol for all patients with a particular condition. A guideline will rarely establish the only approach to a problem.
- The recommendations in this guideline are supported by large controlled studies. The guideline work group would prefer to refer to double-blind studies, but it is not feasible to blind a woman to whether she is having labor or a cesarean section, and it is unsafe to blind care providers to whether a woman has had a previous cesarean section or not. Given these limitations, the work group feels confident of the literature support for the recommendations within this guideline. Furthermore, these recommendations are consistent with the most recent (at the time of guideline publication) Practice Patterns for vaginal birth after cesarean published by the American College of Obstetricians and Gynecologists.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Once a guideline is approved for release, a member group can choose to concentrate on the implementation of that guideline. When four or more groups choose the same guideline to implement and they wish to collaborate with others, they may form an action group.

In the action group, each medical group sets specific goals they plan to achieve in improving patient care based on the particular guideline(s). Each medical group shares its experiences and supporting measurement results within the action group. This sharing facilitates a collaborative learning environment. Action group learnings are also documented and shared with interested medical groups within the collaborative.

Currently, action groups may focus on one guideline or a set of guidelines such as hypertension, lipid treatment and tobacco cessation.

Detailed measurement strategies are presented in the original guideline document to help close the gap between clinical practice and the guideline recommendations. Readers are referred to the original guideline document for more information.

IMPLEMENTATION TOOLS

Clinical Algorithm
Pocket Guide/Reference Cards

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Institute for Clinical Systems Improvement (ICSI). Vaginal birth after cesarean. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2004 Oct. 22 p. [52 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1994 Sep (revised 2004 Oct)

GUIDELINE DEVELOPER(S)

Institute for Clinical Systems Improvement - Private Nonprofit Organization

GUIDELINE DEVELOPER COMMENT

Organizations participating in the Institute for Clinical Systems Improvement (ICSI): Affiliated Community Medical Centers, Allina Medical Clinic, Altru Health System, Aspen Medical Group, Avera Health, CentraCare, Columbia Park Medical Group, Community-University Health Care Center, Dakota Clinic, ENT Specialty Care, Fairview Health Services, Family HealthServices Minnesota, Family Practice Medical Center, Gateway Family Health Clinic, Gillette Children's Specialty Healthcare, Grand Itasca Clinic and Hospital, HealthEast Care System, HealthPartners Central Minnesota Clinics, HealthPartners Medical Group and Clinics, Hutchinson Area Health Care, Hutchinson Medical Center, Lakeview Clinic, Mayo Clinic, Mercy Hospital and Health Care Center, MeritCare, Mille Lacs Health System, Minnesota Gastroenterology, Montevideo Clinic, North Clinic, North Memorial Care System, North Suburban Family Physicians, Northwest Family Physicians, Olmsted Medical Center, Park Nicollet Health Services, Pilot City Health Center, Quello Clinic, Ridgeview Medical Center, River Falls Medical Clinic, Saint Mary's/Duluth Clinic Health System, St. Paul Heart Clinic, Sioux Valley Hospitals and Health System, Southside Community Health Services, Stillwater Medical Group, SuperiorHealth Medical Group, University of Minnesota Physicians, Winona Clinic, Ltd., Winona Health

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GUIDELINE COMMITTEE

OB/GYN Steering Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Work Group Members: John Jefferies, MD (Work Group Leader) (Mayo Clinic) (Obstetrics/Gynecology); Leslie Atwood, MD (Allina Medical Clinic) (Family Practice); Lori Bates, MD (Mayo Clinic) (Family Practice); Brendon Cullinan, MD (Montevideo Clinic) (Family Practice); Mark Matthias, MD (Hutchinson Medical Center) (Family Practice); Dale Akkerman, MD (Park Nicollet Health Services) (Obstetrics/Gynecology); Amy Knox, CNM (Park Nicollet Health Services (Nurse Midwife); Cherida McCall, CNM (HealthPartners Medical Group) (Nurse Midwife); Michele Stegeman, CNM (HealthPartners Medical Group) (Nurse Midwife); Brielle Stoyke, CNM (CentraCare) (Nurse Midwife); Ruth Wingeier, CNM (CentraCare) (Nurse Midwife); Jenny Senti, APRN (Altru Health System) (Nursing); Rick Carlson, MS (HealthPartners) (Measurement Advisor); Nancy Jaeckels (Institute for Clinical Systems Improvement) (Implementation Advisor); Nancy Greer, PhD (Institute for Clinical Systems Improvement) (Evidence Analyst); Linda Setterlund, MT, MA (Institute for Clinical Systems Improvement) (Facilitator)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

In the interest of full disclosure, Institute for Clinical Systems Improvement (ICSI) has adopted the policy of revealing relationships work group members have with companies that sell products or services that are relevant to this guideline topic. The reader should not assume that these financial interests will have an adverse impact on the content of the guideline, but they are noted here to fully inform users. Readers of the guideline may assume that only work group members listed below have potential conflicts of interest to disclose.

No work group members have potential conflicts of interest to disclose.

ICSI's conflict of interest policy and procedures are available for review on ICSI's website at www.icsi.org.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previously released version: Institute for Clinical Systems Improvement (ICSI). Vaginal birth after cesarean. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2003 Oct. 22 p.

GUIDELINE AVAILABILITY

Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site.

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; Web site: www.icsi.org; e-mail: icsi.info@icsi.org.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- ICSI pocket guidelines. April 2004 edition. Bloomington (MN): Institute for Clinical Systems Improvement, 2004. 404 p.

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; Web site: www.icsi.org; e-mail: icsi.info@icsi.org.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on April 30, 1999. The information was verified by the guideline developer on April 30, 1999. This summary was updated by ECRI on October 13, 2000 and January 15, 2002. The summary was most

recently updated on March 14, 2003. The updated information was verified by the guideline developer on May 15, 2003.

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